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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,836	03/08/2004	Andras Kuthi	LAM1P077A2	2484
25920	7590 04/27/2006		EXAMINER	
MARTINE PENILLA & GENCARELLA, LLP			ALEJANDRO MULERO, LUZ L	
710 LAKEWA SUITE 200	AY DRIVE		ART UNIT	PAPER NUMBER
SUNNYVALE, CA 94085			1763	
			DATE MAILED: 04/27/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)	
	10/796,836	. KUTHI ET AL.	
Office Action Summary	Examiner	Art Unit	
	Luz L. Alejandro	1763	
The MAILING DATE of this communication a Period for Reply	ppears on the cover sheet w	th the correspondence address	
A SHORTENED STATUTORY PERIOD FOR REP WHICHEVER IS LONGER, FROM THE MAILING - Extensions of time may be available under the provisions of 37 CFR after SIX (6) MONTHS from the mailing date of this communication. - If NO period for reply is specified above, the maximum statutory perio - Failure to reply within the set or extended period for reply will, by statu Any reply received by the Office later than three months after the mail earned patent term adjustment. See 37 CFR 1.704(b)	DATE OF THIS COMMUNI 1.136(a). In no event, however, may a control of will apply and will expire SIX (6) MON tute, cause the application to become Al	CATION. eply be timely filed THS from the mailing date of this communication ANDONED (35 U.S.C. § 133).	
Status	•		
1) ☐ Responsive to communication(s) filed on 21 2a) ☐ This action is FINAL. 2b) ☐ Th 3) ☐ Since this application is in condition for allow closed in accordance with the practice under	nis action is non-final. vance except for formal mat		;
Disposition of Claims			
4) ☐ Claim(s) 1-14 is/are pending in the application 4a) Of the above claim(s) is/are withdrest is/are allowed. 5) ☐ Claim(s) is/are allowed. 6) ☐ Claim(s) 1-14 is/are rejected. 7) ☐ Claim(s) is/are objected to. 8) ☐ Claim(s) are subject to restriction and	rawn from consideration.		
Application Papers			٠
9) The specification is objected to by the Exami	ner.		
10) The drawing(s) filed on is/are: a) a		by the Examiner.	
Applicant may not request that any objection to the	ne drawing(s) be held in abeya	nce. See 37 CFR 1.85(a).	
Replacement drawing sheet(s) including the correct 11) The oath or declaration is objected to by the			.(t
Priority under 35 U.S.C. § 119			
12) Acknowledgment is made of a claim for foreign a) All b) Some * c) None of: 1. Certified copies of the priority docume 2. Certified copies of the priority docume 3. Copies of the certified copies of the priority docume application from the International Bure * See the attached detailed Office action for a life.	ents have been received. ents have been received in A rionty documents have beer eau (PCT Rule 17.2(a)).	Application No received in this National Stage	
Attachment(s)			
1) Notice of References Cited (PTO-892)		Summary (PTO-413) s)/Mail Date	
Notice of Draftsperson's Patent Drawing Review (PTO-948) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/0 Paper No(s)/Mail Date		nformal Patent Application (PTO-152)	

Application/Control Number: 10/796,836

Art Unit: 1763

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tomita et al., U.S. Patent 5,593,540 in view of Chang et al., U.S. Patent 4,854,263.

Tomita et al. shows the invention substantially as claimed including an apparatus comprising: an electrode 3 capable of being positioned over a substrate location W, the electrode having a center region, a first surface and a second surface, the first surface being configured to receive processing gases through an inlet 55 and to enable flow of

the processing gases through the center region, the second surface having a plurality of gas feed holes that are coupled to a corresponding plurality of electrode openings, the plurality of electrode openings being configured to define the second surface which is located over the substrate location, the second surface having a surface area that is larger than a surface area of the substrate location, the larger surface area being capable of inducing an increased bias voltage at a point closer to the substrate location and a decreased bias voltage at a point closer to the second surface of the electrode when a plasma is struck in a space defined between the second surface and the substrate location (see figs. 1-4 and col. 3-line 40 to col. 5-line 60). Note that inherently the plasma sheath will form within the inlet openings 55 to form the second plasma sheath surface area since the openings have an opening diameter of 0.6mm (see applicant's specification at page 13, lines 22-24 and col. 5-lines 3-5 of Tomita et al.).

Tomita et al. fails to expressly disclose where the electrode opening diameters are greater than the gas feed hole diameters. Chang et al. discloses an electrode which has been formed so as to comprise gas feed holes 33 that lead to a plurality of electrode openings 31, the electrode openings having diameters that are greater than gas feed hole diameters of the plurality of gas feed holes in order to enhance dissociation and reactivity of the gases (see col. 5-lines 33-53 and figs. 1-3). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Tomita et al. as to comprise electrode openings having diameters that are greater than gas feed hole diameters of

reactivity of the gases.

the plurality of gas feed openings because this would enhance dissociation and

With respect to claims 2-3, 6-7, and 10, note that in Tomita et al. the first plasma sheath surface is defined next to the substrate location and a second plasma sheath surface is defined next to the second surface, and the second plasma sheath surface follows an outline defined by the plurality of electrode openings of the second surface of the electrode, and has a larger surface area than the first plasma sheath surface.

Concerning claims 4, 8, and 12, Tomita et al. and Chang do not disclose that the gas feed holes have a diameter of 0.1mm and the second plasma sheath surface is about 2.7 times greater than the first plasma sheath surface, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize through routine experimentation the gas feed hole diameter and the relative surface area of the first and second plasma sheath areas depending upon a variety of factors, for example, the particular size of the semiconductor being processed, and therefore the claimed dimensions would not lend patentability to the instant application absent the showing of unexpected results.

Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al., U.S. Patent 4,854,263 in view of Tomita et al., U.S. Patent 5,593,540.

Chang et al. shows the invention substantially as claimed including an apparatus comprising: an electrode capable of being positioned over a substrate location 12, an electrode which has been formed so as to comprise gas feed holes 33 that lead to a

plurality of electrode openings 31, the electrode openings having diameters that are greater than gas feed hole diameters of the plurality of gas feed holes in order to enhance dissociation and reactivity of the gases (see col. 5-lines 33-53 and figs. 1-3).

Chang et al. does not expressly disclose the electrode having a center region, a first surface and a second surface, the first surface being configured to receive processing gases through an inlet 55 and to enable flow of the processing gases through the center region, the second surface having a plurality of gas feed holes that are coupled to a corresponding plurality of electrode openings, the plurality of electrode openings being configured to define the second surface which is located over the substrate location, the second surface having a surface area that is larger than a surface area of the substrate location, the larger surface area being capable of inducing an increased bias voltage at a point closer to the substrate location and a decreased bias voltage at a point closer to the second surface of the electrode when a plasma is struck in a space defined between the second surface and the substrate location (see figs. 1-4 and col. 3-line 40 to col. 5-line 60).

Tomita et al. discloses the electrode having a center region, a first surface and a second surface, the first surface being configured to receive processing gases through an inlet 55 and to enable flow of the processing gases through the center region, the second surface having a plurality of gas feed holes that are coupled to a corresponding plurality of electrode openings, the plurality of electrode openings being configured to define the second surface which is located over the substrate location, the second surface having a surface area that is larger than a surface area of the substrate

location, the larger surface area being capable of inducing an increased bias voltage at a point closer to the substrate location and a decreased bias voltage at a point closer to the second surface of the electrode when a plasma is struck in a space defined between the second surface and the substrate location (see figs. 1-4 and col. 3-line 40 to col. 5-line 60). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Chang et al. so as to include the electrode of Tomita et al. because such an electrode configuration will allow for adequate introduction of the gases into the processing chamber.

Note that inherently the plasma sheath in Tomita et al. will form within the inlet openings 55 to form the second plasma sheath surface area since the openings have an opening diameter of 0.6mm (see applicant's specification at page 13, lines 22-24 and col. 5-lines 3-5 of Tomita et al.).

With respect to claims 2-3, 6-7, and 10, note that in Tomita et al. the first plasma sheath surface is defined next to the substrate location and a second plasma sheath surface is defined next to the second surface, and the second plasma sheath surface follows an outline defined by the plurality of electrode openings of the second surface of the electrode, and has a larger surface area than the first plasma sheath surface.

Concerning claims 4, 8, and 12, Chang and Tomita et al. do not disclose that the gas feed holes have a diameter of 0.1mm and the second plasma sheath surface is about 2.7 times greater than the first plasma sheath surface, but it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize

through routine experimentation the gas feed hole diameter and the relative surface area of the first and second plasma sheath areas depending upon a variety of factors, for example, the particular size of the semiconductor being processed, and therefore the claimed dimensions would not lend patentability to the instant application absent the showing of unexpected results.

Response to Arguments

Applicant's arguments filed 2/21/06 have been fully considered but they are not persuasive. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the motivation to combine the references is clearly stated in the above final rejection.

Page 8

Concerning applicant's statement that Tomita et al. or Chang et al. do not show "the larger surface being capable of inducing an increased bias voltage at a point closer to the substrate location and a decreased bias voltage at a point closer to the second surface of the electrode", the fact that such limitations are not expressly stated in the references does not take away from the fact that these limitations are inherently present in the reference because of the structure of the Tomita et al. and Chang et al. apparatus. With respect to the declaration under 37 CFR 1.132, applicant is directed to previous responses which are believed to adequately address this particular declaration.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

> Primary Examiner Art Unit 1763

April 25, 2006